What is claimed is:

1. A method of reducing energization transients in a three phase Y-connected load having legs A, B and C associated with corresponding phases of a three-phase AC power system, the method comprising:

   energizing respective legs of said load in an order determined by a energization sequence dependent upon a type of said load, said energization sequence defining first, second and third legs of said legs A, B and C to be energized,

   providing a conduction path for current to flow between a neutral point of the Y-connected load to ground through a transient-limiting impedance while said first, second and third legs are being energized;

   said transient limiting impedance having an impedance value selected such that after said first leg is energized, an energization transient produced on energizing said second leg and an energization transient produced on energizing said third leg are both approximately minimized.

2. The method of claim **1** wherein said energization transient is current.

3. The method of claim **1** wherein said energization transient is voltage.

4. The method of claim **1** wherein said impedance value of said transient-limiting impedance is selected such that said energization transient produced on energizing said second leg is approximately equal to said energization transient produced on energizing said third leg.

5. The method of claim **1** wherein said impedance value of said transient-limiting impedance is selected such that said impedance value of said transient-limiting

impedance is approximately equal to an impedance value at which a first curve depicting transient magnitude vs. transient-limiting impedance for said second leg intersects with a second curve depicting transient magnitude vs. transient-limiting impedance for said third leg.

6. The method of claim **1** wherein energizing comprises closing first, second and third switches associated with respective legs of said load.

7. The method of claim **6** wherein, when said first and second legs are energized, a steady state open circuit voltage across said third switch is approximately equal to a steady state open circuit voltage across said second switch when only said first leg is energized.

8. The method of claim **7** wherein said transient-limiting impedance causes a minimum steady state open circuit voltage to appear across said third switch when said first and second legs are energized and wherein said minimum steady state open circuit voltage appears across said second switch when only said first leg is energized.

9. The method of claim **1** wherein said transient-limiting impedance includes at least one of a resistive component and a reactive component.

10. The method of claim **9** wherein said transient-limiting impedance is selected as a function of an open circuit reactance of said Y-connected load.

11. The method of claim **1** wherein said Y-connected load is a predominantly inductive load type and wherein said first leg is leg A, wherein second leg is leg B and wherein said third leg is leg C of said Y-connected load.

12. The method of claim **11** wherein said Y-connected load is comprised of a transformer having a three-limb core structure.

13. The method of claim **11** wherein said Y-connected load includes a transformer having a delta-connected secondary or tertiary winding.

14. The method of claim **11** wherein said transient-limiting impedance is predominantly resistive.

15. The method of claim **11** wherein said transient-limiting impedance includes a resistive component having a resistance of approximately **0.085**Xopen, where Xopen is an open circuit reactance of said Y-connected load.

16. The method of claim **1** wherein said Y-connected load is a predominantly capacitive load type and wherein said first leg is leg A, wherein said second leg is leg C and wherein said third leg is leg B.

17. The method of claim **16** wherein said transient-limiting impedance includes a resistive component and an inductive reactive component in series.

18. The method of claim **17** wherein said resistive component has a resistance of approximately **0.085**Xopen, where Xopen is an open circuit reactance of said Y-connected load and where said inductive reactive component has a reactance of approximately Xopen/**3**.

19. The method of claim **1** wherein said second leg is energized a period of time after said first leg is energized and wherein said third leg is energized said period of time after said second leg is energized.

20. The method of claim **19** wherein said period of time is greater than or equal to a time period associated with approximately one cycle of an AC waveform associated with said three phase power system.

21. The method of claim **19** wherein said period of time is greater than or equal to approximately **0.01** seconds.

22. The method of claim **19** wherein said period of time is between approximately **0.01** seconds and **1** second.

23. The method of claim **1** further comprising disconnecting said Y-connected load from said transient-limiting impedance after said third leg is energized.

24. The method of claim **23** wherein said Y-connected load is disconnected from said transient-limiting impedance a period of time after said third leg is energized.

25. The method of claim **24** wherein said period of time is greater than or equal to a time period associated with approximately one cycle of an AC waveform associated with said three phase power system.

26. The method of claim **24** wherein said period of time is greater than or equal to approximately **0.01** seconds.

27. The method of claim **24** wherein said period of time is between approximately **0.01** seconds and **1** second.

28. The method of claim **1** further comprising connecting said neutral point of said Y-connected load directly to ground after said third leg is energized.

29. The method of claim **1** wherein said neutral point of said Y-connected load is connected directly to ground a period of time after said third leg is energized.

30. The method of claim **29** wherein said period of time is greater than or equal to a time period associated with approximately one cycle of an AC waveform associated with said three phase power system.

31. The method of claim **30** wherein said period of time is greater than or equal to approximately **0.01** seconds.

32. The method of claim **30** wherein said period of time is between approximately **0.01** seconds and **1** second.

33. An energization transient limited three phase AC power system apparatus comprising:

a three phase Y-connected load having a common neutral point and legs A, B and C associated with corresponding phases of the three-phase AC power system;

switches operable to connect respective said corresponding phases of said three phase power system to said legs A, B and C of said Y-connected load;

a switch controller operable to actuate said switches to energize respective legs of said load in an order determined by an energization sequence dependent upon a type of said load, said energization sequence defining first, second and third legs of said legs A, B and C to be energized;

a conduction path for current to flow between said common neutral point and ground while said first, second and third legs are being energized, said conduction path comprising a transient-limiting impedance having an impedance value such that after said first leg is energized, an

energization transient produced on energizing said second leg and an energization transient produced on energizing said third leg are both approximately minimized.

34. The apparatus of claim **33** wherein said switches include first, second and third switches associated with said first, second and third legs respectively.

35. The apparatus of claim **33** wherein said energization transient is current.

36. The apparatus of claim **33** wherein said energization transient is voltage.

37. The apparatus of claim **33** wherein said impedance value of said transient-limiting impedance is selected such that said energization transient produced on energizing said second leg is approximately equal to said energization transient produced on energizing said third leg.

38. The apparatus of claim **33** wherein said impedance value of said transient-limiting impedance is selected such that said impedance value is approximately equal to a value of impedance at which a first curve depicting transient magnitude vs. transient-limiting impedance for said second leg intersects with a second curve depicting transient magnitude vs. transient-limiting impedance for said third leg.

39. The apparatus of claim **33** wherein, a steady state open circuit voltage across said third switch when said first and second legs of said Y-connected load are energized, is approximately equal to a steady state open circuit voltage across said second switch when only said first leg is energized.

40. The apparatus of claim **39** wherein said transient-limiting impedance causes a minimum steady state open circuit voltage to appear across said third switch when said first and second legs are energized and wherein said minimum

steady state open circuit voltage appears across said second switch when only said first leg is energized.

41. The apparatus of claim **33** wherein said transient-limiting impedance includes at least one of a resistive component and a reactive component.

42. The apparatus of claim **41** wherein said impedance value of said transient-limiting impedance is selected as a function of an open circuit reactance of said Y-connected load.

43. The apparatus of claim **33** wherein said Y-connected load is predominantly inductive and wherein said switch controller actuates said switches such that said first leg is leg A, said second leg is leg B and said third leg is leg C.

44. The apparatus of claim **43** wherein said Y-connected load includes a transformer having a three-limb core structure.

45. The apparatus of claim **43** wherein said Y-connected load includes a transformer having a delta-connected secondary winding.

46. The apparatus of claim **43** wherein said transient-limiting impedance is predominantly resistive.

47. The apparatus of claim **43** wherein said transient-limiting impedance includes a resistive component having a resistance of approximately **0.085**Xopen, where Xopen is an open circuit reactance of said Y-connected load.

48. The apparatus of claim **33** wherein said Y-connected load is predominantly capacitive and wherein said switch controller actuates said switches such that said first leg is leg A, said second leg is leg C and said third leg is leg B.

49. The apparatus of claim **48** wherein said transient-limiting impedance includes a resistive component and an inductive reactive component in series.

50. The apparatus of claim **49** wherein said resistive component has a resistance of approximately **0.085**Xopen, where Xopen is an open circuit reactance of said Y-connected load and wherein said inductive reactive component has a reactance of approximately Xopen/**3**.

51. The apparatus of claim **33** wherein said switch controller causes said second leg to be energized a period of time after said first leg is energized and wherein said switch controller causes said third leg to be energized a period of time after said second leg is energized.

52. The apparatus of claim **51** wherein said period of time is greater than or equal to a time period associated with approximately one cycle of an AC waveform associated with said three phase power system.

53. The apparatus of claim **51** wherein said period of time is greater than or equal to approximately **0.01** seconds.

54. The apparatus of claim **51** wherein said period of time is between approximately **0.01** seconds and **1** second.

55. The apparatus of claim **33** further comprising a disconnect operable to disconnect said Y-connected load from said transient-limiting impedance after said third leg has been energized.

56. The apparatus of claim **55** wherein said switch controller is operable to control said disconnect.

57. The apparatus of claim **56** wherein said switch controller causes said disconnect to be actuated a period of time after said third leg is energized.

58. The apparatus of claim **57** wherein said period of time is greater than or equal to a time period associated with approximately one cycle of an AC waveform associated with said three phase power system.

59. The apparatus of claim **57** wherein said period of time is greater than or equal to approximately **0.01** seconds.

60. The apparatus of claim **57** wherein said period of time is between approximately **0.01** seconds and **1** second.

61. The apparatus of claim **33** further comprising a bypass switch operable to connect said neutral point directly to ground after said third leg is energized.

62. The apparatus of claim **61** wherein said switch controller is operable to control said bypass switch.

63. The apparatus of claim **62** wherein said switch controller causes said bypass switch to be closed a period of time after said third leg is energized.

64. The apparatus of claim **63** wherein said period of time is greater than or equal to a time period associated with approximately one cycle of an AC waveform associated with said three phase power system.

65. The apparatus of claim **63** wherein said period of time is greater than or equal to approximately **0.01** seconds.

66. The apparatus of claim **63** wherein said period of time is between approximately **0.01** seconds and **1** second.

67. An energization transient limited three phase AC power system apparatus comprising:

a three phase Y-connected load having a common neutral point and legs A, B and C associated with corresponding phases of the three-phase AC power system;

means for energizing respective legs of said load from said corresponding phases of said three phase AC power system, in an order determined by a energization sequence dependent upon a type of said load, said energization sequence defining first, second and third legs of said legs A, B and C to be energized,

a conduction path for current to flow between said common neutral point and ground while said first, second and third legs are being energized, said conduction path comprising a transient-limiting impedance having an impedance value such that after said first leg is energized, an energization transient produced on energizing said second leg and an energization transient produced on energizing said third leg are transient produced on energizing said third leg are both approximately minimized.

68. The apparatus of claim **67** wherein said energizing means comprises switching means operable to connect respective said corresponding phases of said three phase power system to said legs A, B and C of said Y-connected load.

69. The apparatus of claim **68** wherein said energizing means comprises:

switches operable to connect said legs A, B and C of said Y-connected load to respective said corresponding phases of said three phase power system; and

a switch controller operable to actuate said switches to energize respective legs of said load in said energization sequence.

70. The apparatus of claim **67** wherein said impedance value of said transient-limiting impedance is selected such that said energization transient produced on energizing said second leg is approximately equal to said energization transient produced on actuating said third leg.